

**REMARKS**

Claims 1-13, 22, 24 and 37 are amended; and claims 1-14, 16-32, 34-44, 46 and 47 are pending in the application.

The Examiner requests that the title and abstract of the application be amended to be more clearly directed toward the methods claimed in the present divisional application. Applicant has amended the title and abstract in accordance with the Examiner's request.

Claim 1 stands rejected under 35 USC §112, second paragraph, as being indefinite. Specifically, the Examiner notes that the preamble refers to a deposition step, but there is no specific recitation of deposition in the body of the claim. Without admission as to the propriety of the Examiner's rejection, applicant has amended the claim so that the deposition step is now recited in the body of the claim. Applicant therefore requests that the Examiner's §112 rejection of claim 1 be withdrawn in the Examiner's next action.

The pending claims stand rejected as being unpatentable over one or more of Ahn, Ghanbari and Cherrette. Applicant respectfully requests reconsideration of such rejections.

Referring initially to claim 1, such recites a process in which phased array microwave radiation interacts with a component during deposition of a material over a substrate within a reaction chamber.

The Examiner cites Ahn and/or Ghanbari for showing that it was known the art to utilize microwave radiation during deposition processes, and cites Cherrette for disclosing that it was known in the art to utilize a phased array antenna to generate microwave energy. The Examiner contends that it would be obvious to utilize the phased array antenna of Cherrette with either of the processes of Ahn or Ghanbari to accomplish the claim 1 recited process.

Applicant respectfully disagrees with the Examiner's contention regarding the obviousness of combining Cherrette with either Ahn or Ghanbari. Specifically, applicant notes that the phased array antenna of Cherrette is disclosed specifically for application in communications satellites (see, for example, column 1, lines 15-17; column 2, lines 37-39 and column 3, lines 33 and 34). Nothing in Cherrette suggests or discloses utilization of phase array antennas in deposition processes. Applicant further notes that Ahn and Ghanbari disclosed deposition processes utilizing uniform fields of microwave radiation, and contain no disclosure or suggestion that there be any advantage for utilizing phased array antennas to generate fields of microwave radiation. Accordingly, there is no suggestion or motivation within any of the cited references for combining the teachings of the references in a manner which would comprise utilization of a phased array antenna of the type disclosed in Cherrette to form phased array microwave radiation for utilization in either of the processes of Ahn or Ghanbari.

The Examiner states that a person of skill in the art would be motivated to utilize the phased array antenna of Cherrette in the process of Ahn or Ghanbari because the use of an active phased array would be accompanied with an "expectation of obtaining a more cost-effective coating process". Such statement of the Examiner is not supported by the cited references. Specifically, nothing in the references teaches that the phased array antenna of Cherrette would lead to a more cost-effective coating process if utilized in either of the deposition processes of Ahn or Ghanbari. Rather, the only teachings regarding the advantages for utilization of the phased array antenna of Cherrette are teachings by the Cherrette reference that such phased array antenna has particular advantages of radiating heat into cold space when such phased array antenna is utilized in commercial

communications satellite applications. These teachings of Cherrette do not imply any advantages that would be obtained for utilization of the phased array antenna disclosed therein relative to deposition processes.

As there is no teaching within the cited references that could be construed as motivation to combine the teachings of the references to form a method in which phased array microwave radiation is utilized in a deposition process, the motivation provided by the Examiner would appear to be hindsight reconstruction of applicant's claimed invention. The Examiner is respectfully reminded that hindsight reconstruction is an inappropriate basis for a §103 rejection, and that the motivation to combine references for an appropriate §103 rejection must be found in the prior art, (see, for example, MPEP §706.02(j)).

Applicant's specification provides numerous advantages for utilization of phased array microwave radiation in deposition processes, including, for example, a discussion at paragraph 0049 that phased array antennas can have a desired rapid response time for particular deposition processes, and a discussion at paragraph 0051 that phased array antennas can allow for control of orientation of microwave radiation during deposition processes. Such specific advantages further evidence the patentability of claim 1.

Claim 1 is allowable for the reasons discussed above, and applicant therefore requests formal allowance of claim 1 in the Examiner's next action.

Claims 2-13 depend from claim 1, and are therefore allowable for least the reasons discussed above regarding claim 1. Applicant therefore requests allowance of claims 2-13 in the Examiner's next action.

Claims 28 and 39 like the above-discussed claim 1 recited methods utilizing phased array microwave radiation during deposition processes. Claims 28 and 39 are therefore

allowable for reasons similar to those discussed above regarding claim 1, and accordingly, applicant respectfully requests such allowance in the Examiner's next action.

Claims 29-32, 34-36, 40-44, 46 and 47 depend from claims 28 and 39, and are therefore allowable for least the reasons which claims 28 and 39 are allowable.

Referring next claim 14, such recites a deposition method utilizing microwave radiation associated with a beam that is emitted along a first axis within a chamber and swept along a second axis within the chamber.

Not one of the Examiner's cited references suggests or discloses microwave radiation associated with a beam that is emitted along a first axis within a deposition chamber and swept along a second axis within the chamber. Accordingly, it is inconceivable that any combination of the references could suggest or disclose such recited feature of claim 14. For at least this reason, claim 14 is allowable over the cited references.

Claims 16-27 depend from claim 14, and are therefore allowable for least the reasons for which claim 14 is allowable.

Referring next claim 37, such recites a deposition process utilizing microwave radiation to activate at least one microwave-inducible constituent, with the microwave radiation being generated by a source which extends across the expanse, and with the microwaves along one portion of the expanse being selectively tuned relative to the microwaves along a different portion of the expanse.

Not one of the Examiner's cited references suggests or discloses a deposition process utilizing microwave radiation where the microwaves along one portion of the expanse are selectively tuned relative to the microwaves along a different portion of the

expense. Accordingly, it is inconceivable that any combination of the references could suggest or disclose such recited feature of claim 37. For least this reason, claim 37 is allowable over the cited references.

Claim 38 depends from claim 37, and is therefore allowable for least the reasons for which claim 37 is allowable.

The pending claims 1-14, 16-32, 34-44, 46 and 47 are allowable for the reasons discussed above, and applicant therefore respectfully requests that the Examiner's next action by a Notice of Allowance.

Respectfully submitted,

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By: 

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